

We claim:

1. A method for determining degradation of a first valve coupled between an exhaust manifold and an intake manifold of an internal combustion engine, said first valve allowing exhaust 5 gas to flow from the exhaust manifold to the intake manifold, the engine also having a second valve coupled to the intake manifold that allows fresh air to flow into the intake manifold, the method comprising:

      determining whether preselected conditions are present;

10      actuating said first valve to open greater than a requested amount to evaluate flow of the gas;

      monitoring at least both an intake manifold pressure and operation of said second valve during said actuation;

15      comparing said monitored pressure and said operation to expected values; and

      evaluating the flow of the gas based on said comparison.

2. The method recited in claim 1, wherein preselected Condition includes engine idling.

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3. The method recited in claim 1, wherein said first valve is an electrically actuated exhaust gas recirculation valve.

4. The method recited claim 1, wherein said first valve is a vacuum actuated exhaust gas recirculation valve.

5. The method of claim 1, wherein said second valve is an electronically controlled throttle.

6. The method of claim 1, wherein said second valve is an idle air bypass valve.

10 7. The method of claim 1, wherein said monitoring of said operation of said second valve includes monitoring a position of said second valve.

15 8. The method of claim 1, wherein said monitoring of said operation of said second valve includes monitoring amount of air flow through said second valve.

20 9. The method of claim 1, wherein said operation of said second valve is determined to maintain an engine speed at a desired engine idle speed.

10. The method of claim 1, wherein said monitoring further includes monitoring adjustments in ignition timing during said actuation, and wherein said comparing further includes comparing adjustments in ignition timing to expected values.

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11. The method of claim 1, further comprising correcting engine fuel injection based on said evaluation.

12. The method of claim 1, wherein said monitoring further 10 includes monitoring adjustment in fuel command based on feedback from an exhaust gas oxygen sensor, and wherein said comparing further includes comparing said fuel adjustment to expected values.